Intra-segmental timing in sound change: /aw/ in Philadelphia

Citation for published version:

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Intro

Philadelphia (Labov et al. 2013)

Formant Trajectories

Have been investigated with generation as a categorical variable. Jacewicz, Fox & Salmons (2011)

Wholistic measures compared against continuous variables. Rudolf & Kohn (2014)

With GAMs, it is possible to model trajectories against continuous variables. Wood (2006)

Methods

Data

Philadelphia Neighborhood Corpus

19,517 tokens of pre-oral /aw/

279 white speakers

Modelling

Generalized additive models & tensor product smooths

Outcome (F1)

Predictor (dob)

FAVE-extract

Full formant tracks extracted

Subsampled to 20 measurements per token

Predictors

All non-linear effects and interactions between

- gender
- log2(duration)
- date of birth
- measurement point

Results

Formant tracks

max F1 excursion

Vowel space trajectories

F1 relative to F2

Conclusion

Further directions

It is not straightforward to characterize /aw/ as a 2 part diphthong in Philadelphia.

Along with the shifts in vowel quality, there is a considerable shift in relative timing of vowel formant targets.

This puts /aw/ in line with some consonantal phonetic changes, such as Scottish derthoticization or Andalusian post-aspiration.

Evaluating and improving quality of automated full formant track extraction.

Incorporating more linguistic (nasals) and social (education) factors into analysis.

Are the F1 and F2 qualities used differently for linguistic or sociolinguistic perception?

References


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